

Claim Amendments

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claim 1. (Currently Amended) A polyurethane (A) prepared from reactants comprising:

- a) at least one organic diisocyanate or polyisocyanate,
- b) at least one compound comprising at least one isocyanate-reactive group and at least one free radically polymerizable unsaturated group and/or cationically polymerizable group,
- c) at least one compound comprising at least one isocyanate-reactive group and at least one capped amino group and having a molecular weight below 1000 g/mol,
- d) ~~if desired~~ optionally, at least one compound comprising at least one isocyanate-reactive group and at least one actively dispersing group,
- e) ~~if desired~~ optionally, at least one compound comprising at least two isocyanate-reactive groups, and
- f) ~~if desired~~ optionally, compounds other than a) to d) comprising at least one isocyanate-reactive group, the allophanate fraction being 5 to 65 mol % based on the lowest molecular weight allophanate molecule.

Claim 2. (Currently Amended) A polyurethane (A) prepared from reactants comprising:

- a) at least one organic diisocyanate or polyisocyanate,

- b) at least one compound comprising at least one isocyanate-reactive group and at least one free radically polymerizable unsaturated group and/or cationically polymerizable group,
- c) at least one compound comprising at least one isocyanate-reactive group and at least one capped amino group and having a molecular weight below 1000 g/mol,
- d) 1-30 mol % of at least one compound comprising at least one isocyanate-reactive group and at least one actively dispersing group,
- e) ~~if desired~~ optionally, at least one compound comprising at least two isocyanate-reactive groups, and
- f) ~~if desired~~ optionally, compounds other than a) to d) comprising at least one isocyanate-reactive group

Claim 3. (Currently Amended) A polyurethane (A) prepared from reactants comprising consisting essentially of:

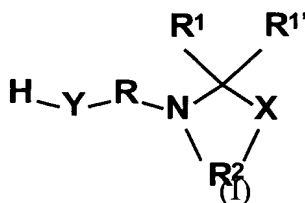
- a) at least one (cyclo)aliphatic organic diisocyanate or polyisocyanate,
- b) at least one compound comprising at least one isocyanate-reactive group and at least one free radically polymerizable unsaturated group and/or cationically polymerizable group,
- c) at least one compound comprising at least one isocyanate-reactive group and at least one capped amino group and having a molecular weight below 1000 g/mol,
- d) ~~if desired~~ optionally, at least one compound comprising at least one isocyanate-reactive group and at least one actively dispersing group, and
- f) ~~if desired~~ optionally, compounds other than a) to d) comprising at least one isocyanate-reactive group

Claim 4. (Currently Amended) The polyurethane (A) according to claim 1, wherein synthesis component c) has a molecular weight below 750 g/mol.

Claim 5. (Previously Presented) The polyurethane according to claim 1, comprising per 100 g of compound at least 0.01 mol of unsaturated free radically or cationically polymerizable groups and/or at least 0.01 mol of capped amino groups.

Claim 6. (Previously Presented) The polyurethane according to claim 1, wherein said at least one capped amino group is selected from the group consisting of open-chain aminals, cyclic aminals, ketimines, aldimines, N,O-acetals, N,O-ketals, carboxamides, sulfonamides, and amidines.

Claim 7. (Currently Amended) The polyurethane according to claim 1, wherein component c) has the formula (I)



where

R and R² independently are each a divalent organic aliphatic, cycloaliphatic or aromatic radical comprising 2 to 20 carbon atoms which is unsubstituted or substituted by functional groups, aryl, alkyl, aryloxy, alkyloxy, halogen, heteroatoms and/or heterocycles[[],];

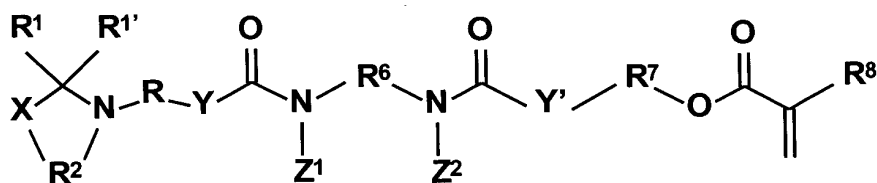
R^1 and $R^{1'}$ independently are each hydrogen, C_1 - C_{18} alkyl, C_2 - C_{18} alkyl which is uninterrupted or interrupted by one or more oxygen and/or sulfur atoms and/or by one or more substituted or unsubstituted imino groups, or is C_6 - C_{12} aryl, C_5 - C_{12} cycloalkyl or a five- or six-membered heterocycle containing oxygen, nitrogen and/or sulfur atoms, and each of said radicals ~~to be~~ optionally being substituted by functional groups, aryl, alkyl, aryloxy, alkyloxy, halogen, heteroatoms and/or heterocycles[[,]];

X is oxygen (-O-), unsubstituted or monosubstituted nitrogen ($-N(R^4)-$) or $>N-NR^4R^{5[[,]]]$;

Y is oxygen (-O-), unsubstituted nitrogen ($-N(H)-$) or sulfur (-S-)[[,]]; and

R^4 and R^5 independently are each hydrogen or C_1 - C_4 alkyl.

Claim 8. (Currently Amended) The polyurethane according to claim 1, comprising at least one of the following compounds of the formula (II)



~~or higher homologs thereof,~~

where wherein

R and R^2 independently are each a divalent organic aliphatic, cycloaliphatic or aromatic radical containing 2 to 20 carbon atoms and unsubstituted or substituted by functional groups, aryl, alkyl, aryloxy, alkyloxy, halogen, heteroatoms and/or heterocycles[[,]];

R^1 and $R^{1'}$ independently are each hydrogen, C_1 - C_{18} -alkyl, C_2 - C_{18} -alkyl which is uninterrupted or interrupted by one or more oxygen and/or sulfur atoms and/or by one or more substituted or unsubstituted imino groups, or are each C_6 - C_{12} -aryl, C_5 - C_{12} -cycloalkyl or a five- or six-membered heterocycle containing oxygen, nitrogen and/or sulfur atoms, ~~it being possible for~~ and each of said radicals ~~to be~~ optionally being substituted by functional groups, aryl, alkyl, aryloxy, alkyloxy, halogen, heteroatoms and/or heterocycles[[,]];

X is oxygen (-O-), unsubstituted or monosubstituted nitrogen ($-N(R^4)-$) or $>N-NR^4R^5$ [[,]];

Y is oxygen (-O-), unsubstituted nitrogen ($-N(H)-$) or sulfur[[,]];

Y' is the same as or ~~can be defined for Y but can also be~~ different from Y[[,]];

R^6 and R^7 each independently are a divalent organic aliphatic, cycloaliphatic or aromatic radical containing 2 to 20 carbon atoms and unsubstituted or substituted by functional groups, aryl, alkyl, aryloxy, alkyloxy, halogen, heteroatoms and/or heterocycles[[,]];

R^8 is hydrogen, methyl, ethyl or hydroxymethyl, and

Z^1 and Z^2 ~~can be~~ are identical or different and independently of one another are hydrogen or $-(CO)-NH-R^6-NCO$.

Claim 9. (Currently Amended) A polyurethane dispersion, comprising:

(A) a polyurethane according to claim 1 and comprising component d),

(C) ~~if desired~~ optionally, one or more photochemically and/or thermally ~~activable~~ activatable initiators, and

(D) ~~if desired~~ optionally, further ~~typical~~ coatings additives.

Claim 10. (Currently Amended) A coating composition, comprising:

said polyurethane dispersion according to claim 9, and

(C) ~~if desired~~ optionally, one or more photochemically and/or thermally ~~activable~~ activatable initiators, and

(D) ~~if desired~~ optionally, further ~~typical~~ coatings additives.

Claim 11. (Currently Amended) A method of coating a substrate, which comprises:

radiation curing a substrate coated with said polyurethane as claimed in claim 1, and

~~thermally treatment~~ heating the applied polyurethane at a temperatures up to 160° C.

Claim 12. (Currently Amended) The method according to claim 11, wherein said

~~thermally treating takes place between~~ temperature ranges from 60 and to 160° C.

Claim 13. (Previously Presented) The method according to claim 11, wherein the

radiation curing is conducted under inert gas.

Claim 14. (Previously Presented) A radiation-curable coating composition comprising

said polyurethane according to claim 1.

Claim 15. (Currently Amended) A method for coating wood, metal or plastic, said

method, comprising:

coating said wood, metal or plastic with said polyurethane according to claim 1.

Claim 16. (Currently Amended) ~~an~~ An automotive paint or automotive topcoat

material comprising said polyurethane as claimed in claim 1.

Claim 17. (Currently Amended) A coating composition, comprising:

said polyurethane (A) according to claim 1 and

(C) ~~if desired~~ optionally, one or more photochemically and/or thermally

~~activable~~ activatable initiators, and

(D) ~~if desired~~ optionally, further, ~~typical~~ additives.

Claim 18. (Currently Amended) A method for coating wood, metal or plastic, said method, comprising:

coating said wood, metal or plastic with said polyurethane dispersion according to claim 9.